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ESTIMATING THE EFFECT OF ENTREPRENEUR EDUCATION ON GRADUATES' INTENTION TO BE ENTREPRENEURS

1. Introduction

In line with national transformation, Malaysia sees entrepreneurship as a catalyst to transform the country from a middle-income to a high-income economy by 2020 (Yeng Kiat and Shuhymee, 2012). Thus, it is not surprising that academicians, practitioners and policy-makers need to increase their efforts to cultivate the entrepreneurial mindset among the society (Davey *et al.*, 2011). For instance, Malaysian public universities such as Universiti Utara Malaysia, have developed niche areas of research and teaching in entrepreneurship and offers a bachelor program in entrepreneurship since 2004 (Zuhairah, *et al.*, 2014; Berma, *et al.*, 2012; and Malaysia Qualification Register (MQR), 2009).

At ministry level, in line with the Malaysian Government Transformation Program in Critical Agenda Project (CAP) which is aimed at education and entrepreneurial development, the Malaysian Ministry of Education (MoE) (formerly known as Ministry of Higher Education) has targeted that the number of students exposed to entrepreneurial activities to be increased accordingly (Ministry of Education (MoE), 2007).

Rwigena and Venter (2004) indicate that a graduate entrepreneur refers to someone in the process of starting a business (as his or her career option). The Malaysian Department of Statistics (2009) defines the graduate entrepreneur as an individual who has tertiary education and is involved in entrepreneurial activities. By combining the definitions of entrepreneur and graduates, it can be postulated that a graduate entrepreneur is an individual with tertiary education (from any higher learning institutions) and he or she states “self-employed” in his or her employment status.

The MoE has launched a policy for the establishment of Entrepreneurship Development Institutes in Higher Education Institutions (HEIs) in April 2010. This policy aims to promote the education, development and entrepreneurship HEIs using a holistic approach (National Higher Education Action Plan (PSPTN), 2007). As a spin-off from the policy of entrepreneurship education and development, the government has expanded efforts to enhance the participation of graduates in the entrepreneurship sector.

In line with the Malaysian Government's Transformation Programme (GTP), a Critical Agenda Project (CAP) aimed at entrepreneurial education and development has been implemented by the Ministry of Education. This CAP within the PSPTN 2011-2015 has targeted that the number of students becoming entrepreneurs to increase from 1.6 percent to 5 percent throughout the PSPTN period of 2011- 2015. To achieve the CAP target (increasing the number of graduates entrepreneurs), the government has provided various entrepreneurship assistance, such as funding, physical infrastructure and business advisory services through various entrepreneurial bodies such as the Graduate Entrepreneur Fund, National Institute of Entrepreneurship and *Permodalan Usahawan Bumiputera Nasional (PUNB)* through the "*Skim Graduan*" which is a pioneer graduate programme (Muhammad Mu'az *et al.*, 2011; and Sandhu *et al.*, 2010).

Despite these efforts to cultivate entrepreneurship, Mohamad Ismail, *et al.* (2009) has found that in Malaysia, entrepreneurial activities are still at best, minimal. Fatoki (2010) states that graduates have a lot of opportunities and they should explore their creativity in the entrepreneurial field as their career. However, there are not many graduates taking up the opportunity to be entrepreneurs (see Table 1).

Table 1
Employment status of graduates (Malaysians), Graduates Tracer Study, from year 2009 to 2013

Employment Status	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)
Employed	98.8	98.7	98.4	98.4	98.3
Self-employed	1.2	1.3	1.6	1.6	1.7
Total	100.0	100.0	100.0	100.0	100.0

Source: Planning, Research and Corporate Division, MoE, 2013

On average, over five years (from 2009 to 2013), the number of graduate entrepreneurs is insubstantial (see Table 1). As of 2013, there was only 1.7 percent of self-employed graduates. This figures obviously shows that there is only a small number of fresh graduates who have chosen to be entrepreneurs. Clearly, a huge gap exists between what is targeted by the government (increased substantially by 300 percent through the PSPTN 2011-2015) and what has been achieved in reality (increment just only 0.05 percent from 2009 to 2013).

An evaluation of the effect of entrepreneurship education is urgently needed. Although there are studies on the effects of entrepreneurship education on graduates' intention to be entrepreneurs, the studies mostly focused exclusively either on formal or informal entrepreneurship education and may omit other important factors. Thus, there are few studies focusing on both formal and informal entrepreneurship education in Malaysia towards graduates' intention to be entrepreneurs. This paper therefore aims to contribute by estimating the effects of entrepreneurship education (both formal and informal) towards graduates' tendency to choose entrepreneurship as their career (*see Appendix II*).

2. Literature Review

2.1 Intention to be an entrepreneur

Souitaris *et al.* (2007) indicate that intention means an individual wants to start some entrepreneurship activities. Intentions play a role to develop the entrepreneurship activities and the capability of being an actual entrepreneur (Mohd Rosli *et al.*, 2013). Bird (1992) explains that the intention for entrepreneurship has a direct relationship towards experience and individual behavior. Abdul Halim *et al.* (2010) state that entrepreneurship intention is influenced by several characteristics such as attitude, innovativeness, being a team player, risk taker and being a decision-maker. With regards to formal entrepreneurship education in HEIs (*see Appendix I*) and informal entrepreneurship education, this study examines whether both factors would enhance graduates' intention to become entrepreneurs.

2.2 Entrepreneurship education

Entrepreneurship education is an important education and has been introduced to learning institutions, whether at school, university and postgraduate training programs (Hattab, 2014). There has been a growth in the development of entrepreneurship in Malaysia since the offering of entrepreneurship education in the mid- 1990s (Mohd Khairuddin and Syed Azizi, 2002; Armanurah *et al.*, 2005; Mahmood *et al.*, 2010; and Nor Aishah, 2013). Thirteen universities in Malaysia offer entrepreneurship programmes and courses (compulsory, core or elective courses) (*see Appendix I*). Wang and Verzat (2011) state that entrepreneurship can be encouraged via entrepreneurship education. Romero (2013) finds that while entrepreneurship education given in lecture halls gives important influence to develop the entrepreneurship activities in European context, the involvement of students in the field of entrepreneurship will make the entrepreneurial learning process more efficient.

Furthermore, with the rapid developments in entrepreneurship activities, entrepreneurship education should be expanded through constructive learning and self-experiential methods (Solomon *et al.*, 2002). A number of studies have contradictory findings between the effects of formal and informal entrepreneurship education towards graduates' intention to actually becoming entrepreneurs. For instance, Collins *et al.* (2004) state that formal entrepreneurship education provided by HEIs is capable to produce entrepreneurs among graduates. Their findings are supported by Henderson and Robertson (2000); and Syahrina *et al.* (2013). Meanwhile, Zainal Abidin *et al.* (2011) find that informal entrepreneurship education is more effective in influencing graduates to participate in entrepreneurship activities.

In Malaysia, studies by Ming Yu *et al.* (2009); and Muhammad Mu'az *et al.* (2011) also find that formal entrepreneurship education gained from lecture halls is insufficient for increasing the number of entrepreneurs among graduates. In Malaysia, studies on the effects of both formal and informal entrepreneurship education simultaneously towards graduates choosing to be entrepreneurs are largely lacking. Thus, an evaluation of the effect of entrepreneurship education is urgently needed. This study will focus on the effects of both formal and informal entrepreneurship education towards graduates' choice to be entrepreneurs.

2.2.1 Formal entrepreneurship education

The European Centre for the Development of Vocational Training (2008) defines formal education as organized and structured learning in an educational institution and is authenticated and certified by a government. In Malaysia, the process of formal education in an educational institution ends with the award of certificates, diplomas and degrees (MoE, 2007). Formal entrepreneurship education is designed to enhance and develop entrepreneurship awareness among the graduates (Pittaway and Edwards, 2012) and also to

influence graduates' entrepreneurial mindset (European Commission, 2012; and Cooney and Murray, 2008). Studies by Van der Sluijs *et al.* (2005); and Sario (2011) show a positive relationship between formal entrepreneurship education and entrepreneurship performance.

Therefore, through formal entrepreneurship education, a nation is capable to produce lots of graduates' entrepreneurs, reduce the numbers of graduate unemployment and boost the nation's development (Muhammad *et al.*, 2011; Berma *et al.*, 2012; and Amran *et al.*, 2013). Studies by Politis (2008) finds that formal entrepreneurship education can cultivate graduates' interest in entrepreneurship activities and transform graduates to be job creators rather than job seekers (Zaidatol *et al.*, 2002).

2.2.2 Informal entrepreneurship education

Informal entrepreneurship education is about self- experience, acquiring of independent learning skills and practices, which in turn would influence graduates to be entrepreneurs (Shelly and Seung, 2008; Eraut, 2004; and Norfadhilah and Norasmah, 2004). Informal entrepreneurship education also includes independent learning skills, mentoring approaches and also social networking (Shelley and Seung, 2008).

For example, Klyver (2007) classifies family business as informal entrepreneur education, where an individual gains entrepreneurial experience from his or her family background. In their studies, Amran *et al.* (2013); and Othman *et al.* (2005) find that graduates who have entrepreneurship experience tend to choose entrepreneurship activities as their career after completing their study.

3. DATA AND METHODOLOGY

3.1 Data

The target population in this study is Universiti Utara Malaysia graduates because the entrepreneurship courses offered are more comprehensive compared to those of other HEIs and also being among the first universities offering a bachelor degree program in entrepreneurship (Berma, *et al.*, 2012; and Malaysia Qualification Register (MQR), 2009) (*see Appendix I*). The participation was voluntary and there was no sampling frame for this study. Data were collected through self-administered questionnaires. Compared to the population size of 5, 819 graduates, the achieved sample size represents a response rate of 39.5 percent (a sample size of 2, 300), which is adequate according to Krejcie and Morgan (1970).

The questionnaire solicits three main respondent's information: respondent's demographic background, entrepreneurship education (formal and informal) and intention to be an entrepreneur. Respondent's intention to be an entrepreneur contains 19 items (see Ajzen, 1991; Birds, 1992; and Lim and Hussin, 2004), divided into talent domain and innovator domain. Respondents are also asked for their perception towards intention to be an entrepreneur before (during final semester) and after they enter the employment market (current). The findings from this section could be used to know whether there are different levels of intention to be an entrepreneur (before and after enter employment market).

3.2 Methodology

The descriptive statistics such as mean and standard deviation, two-way table, are used to analyze the intention to be an entrepreneur and variables associated with it. Linear regression is also used to estimate the effects of various variables on the intention to be an entrepreneur.

A multiple regression model is estimated to examine the effects of education on intention to be an entrepreneur:

$$y_{ij} = \beta x_i + u_i$$

j = 1 (Talent before entering employability market)

= 2 (Innovator before entering employability market)

= 3 (Talent after entering employability market)

= 4 (Innovator after entering employability market)

Where;

y = intention to be an entrepreneur of j

x = vector of independent variables

The independent variables consist of three categories: formal entrepreneurship education (Degree of Entrepreneurship; and entrepreneurship training), informal entrepreneurship education (running business during study; running business before study; family involved in entrepreneurship; and friends involved in entrepreneurship activities, and socio-demographic (such as gender, age, *Malay*, Cumulative Grade Point Average (CGPA), Malaysian University English Test (MUET), employment status, father and mother economically active.

4. ANALYSES AND RESULTS

4.1 Sample characteristics

Table 2 presents the sample characteristics. The sample is dominated by female (70.1%); this reflects the characteristics of the undergraduate population in UUM, i.e., female students are the majority. A total of 84 percent of respondents are between 20 to 25 years old and more than 90 percent of respondents claimed they are single. The majority of respondents are

Malays (66.4%). A total of 64.6 percent respondents obtained a second class upper CGPA which ranges from 3.00 to 3.66. The employment status shows that 46 percent respondents were unemployed, 47.2 percent employed, and only 6.8 percent self-employed. Thus, there is a small portion of graduates who choose to be entrepreneurs. The majority of respondents had non-entrepreneurship degrees (95.4 percent).

Table 2
Characteristics of Respondent

Variable	Category	Percentage (%)
Gender:	Male	29.1
	Female	70.1
Age	20- 25	84.0
	26- 30	16.0
Marital status:	Single	92.4
	Married	7.5
	Others	0.1
Ethnicity:	<i>Malay</i>	66.4
	Chinese	24.9
	India	6.3
	Others	2.4
CGPA	2.00- 2.99	28.5
	3.00- 3.66	64.6
	3.67- 4.00	6.9
Employment's status	Unemployed*	46.0
	Employed	47.2
	Self- Employed	6.8
Degree of studies in Universiti Utara Malaysia	Degree on entrepreneurship	4.6
	Other degrees	95.4

Note:

* "Unemployed" included those who are pursuing further studies, unemployed but inactively seeking job, and unemployed but actively seeking job.

4.2 Entrepreneurship education: Formal and informal entrepreneurship education

Table 3 shows that an overwhelming proportion (95.5 percent) of the respondents are non-entrepreneur degree holder. 41.3 percent of the respondents were involved in formal entrepreneurship training during their study. Only 35 percent were running entrepreneurial activities during their study, 29.9 percent running entrepreneurial activities before study. A total of 39.1 percent of the respondents' families are involved in entrepreneurial activities.

Slightly more than half (50.5 percent) of the respondents have friends who are involved in entrepreneurial activities.

Table 3
Entrepreneurship education of respondents

Types of education	Types	Categorical	Total	Percentage
Formal entrepreneur education	a. Entrepreneur degree holder	Yes	106	4.6
		No	2194	95.5
		Total	2300	100.0
	b. Involved in entrepreneurship training	Yes	936	41.3
		No	1328	57.7
		Total	2264	100.0
Informal entrepreneur education	c. Run business during study	Yes	804	35.0
		No	1496	65.0
		Total	2300	100.0
	d. Run business before study	Yes	619	26.9
		No	1681	73.1
		Total	2300	100.0
	e. Family are involved in entrepreneurship	Yes	911	39.6
		No	1389	60.4
		Total	2300	100.0
	f. Friend are involved in entrepreneurship	Yes	1161	50.5
		No	1139	49.5
		Total	2300	100.0

There are variations in the level of entrepreneurship education among the respondents. It is clearly shown that there is a substantial portion of graduates that have been exposed to the formal and informal entrepreneurship education (see Table 3).

4.3 Intention to be an entrepreneur and entrepreneurship education

Table 4 show that those with entrepreneur degrees have stronger intention to be entrepreneurs than those with non-entrepreneurs degrees (5.72 compared to 5.28), after entering the labour market. Similarly, those involved in entrepreneurial activities during study also have stronger intention to be entrepreneurs than those not in such activities (5.45 compared to 5.19), after entering labour market.

The running own business during study, running own business before study, family running own business and friend running their own business is found to be positively related to choosing entrepreneurship as a career option before and after they enter the labour market. It is found that males tendency to be an entrepreneur is higher than their female counterparts (5.51 compared to 5.21 from Table 4) and significant at the 1 percent level.

The mean of 5.65 for the 26- 30 age range is the highest compared to other age categories. Mean category of age range from 26 years old to 30 years old is 5.65 (the highest) compared to other age categories. Mean category of *Malay* ethnic is 5.40 (the highest) compared to others ethnics.

Respondents with low CGPA is found that lowest achievement (5.60) are more intent to become entrepreneur compared with highest academic achievement (which is 5.60 compared to 5.02). It is found that graduates who are working have a higher (5.36 compared to 5.22) tendency intention to be an entrepreneur compared to those who are unemployed and significant at one percent after they enter the labour market.

Table 4
Mean descriptive statistics of respondents in talent domain, before and after entering labour market

		Intention to be entrepreneur (after)	Intention to be entrepreneur (before)
Variable	Categorical	Mean	Mean
<u>Formal entrepreneur Education:</u>			
Entrepreneur degree holder	Yes	5.72***	5.48***
	No	5.28	5.16
Involving entrepreneurship program or entrepreneurial activities during study	Yes	5.45***	5.38***
	No	5.19	5.03
<u>Informal entrepreneur Education:</u>			
Running own business during study	Yes	5.65***	4.98***
	No	5.12	5.55
Running own business before study	Yes	5.67***	5.54***
	No	5.17	5.04
Family running own business	Yes	5.48***	5.39***
	No	5.19	5.03
Friend running their own business	Yes	5.38***	5.29***
	No	5.22	5.06
<u>Respondent's demographic:</u>			
Gender	Female	5.21	5.10
	Male	5.51***	5.37***
Age	20-25 years	5.23	5.11
	26-30 years	5.65***	5.53***
Marital status	Single	5.29	5.17
	No single	5.35	5.34
Malay	Malay	5.40***	5.28***
	Non- Malay	5.08	4.96
Cumulative Grade Point Average (CGPA)	2.00- 2.99	5.60***	5.43***
	3.00- 3.66	5.19	5.08
	3.67- 4.00	5.02	5.02
Working	Yes	5.36***	5.19
	No	5.22	5.16
Father active economically	Yes	5.30	5.19
	No	5.23	5.11
Mother active economically	Yes	5.35	5.24**

In general, the mean statistics in Table 4 show that the talent domain has high similarity with the innovator domain results in Table 5. It is found that entrepreneur degree holder, involvement in entrepreneurship activities, running own business during study, running own business before study, family running own business, friend running their own business, male, age (26 years old to 30 years old), single, *Malay* ethnicity and employed is found to be positively related to entrepreneurship career option (see Table 5).

The CGPA variables shows an interesting finding in which lowest those with lower CGPA (a mean of 5.54, from Table 5) have a higher intention to be entrepreneurs compared to those with higher CGPA (a mean of 5.09, from Table 5).

Table 5
Mean descriptive statistics of respondents in innovator domain, before and after entering labour market

		Intention to be entrepreneur (after)	Intention to be entrepreneur (before)
Variable	Categorical	Mean	Mean
<u>Formal entrepreneur Education:</u>			
Entrepreneur degree holder	Yes	5.72***	5.48***
	No	5.28	5.16
Involving entrepreneurship program or entrepreneurial activities during study	Yes	5.45***	5.38***
	No	5.19	5.03
<u>Informal entrepreneur Education:</u>			
Running own business during study	Yes	5.65***	4.98***
	No	5.12	5.55
Running own business before study	Yes	5.67***	5.54***
	No	5.17	5.04
Family running own business	Yes	5.48***	5.39***
	No	5.19	5.03
Friend running their own business	Yes	5.35***	5.29***
	No	5.19	5.00
<u>Respondent's demographic:</u>			
Gender	Female	5.19	5.11
	Male	5.47***	5.35***
Age	20-25 years	5.19	5.10
	26-30 years	5.27***	5.62***
Marital status	Single	5.26**	5.17***
	No single	5.43	5.42
Malay	Malay	5.38***	5.28***
	Non- Malay	5.04	4.98
Cumulative Grade Point Average (CGPA)	2.00- 2.99	5.54***	5.43***
	3.00- 3.66	5.17	5.08
	3.67- 4.00	5.09	5.02
Working	Yes	5.34**	5.20
	No	5.19	5.16
Father active economically	Yes	5.17	5.14
	No	5.28	5.19
Mother active economically	Yes	5.24	5.15**
	No	5.32	5.25

The results of the descriptive analysis (see Table 4, and Table 5) provide a general overview of the respondents' profile. It is found that respondents are exposed to entrepreneurship education in terms of formal and informal education. This is an important finding in this study to estimate the impact of entrepreneurship education on the intention and the respondent's choice to be an entrepreneur.

Table 6
Estimated linear regression results between intention to be entrepreneur in talent domain, before and after entering labour market

Variable	Talent	
	After	Before
<u>Formal entrepreneur Education:</u>		
Entrepreneur degree holder	3.978**	2.028
Involving entrepreneurship program or entrepreneurial activities during study	1.177	2.462***
<u>Informal entrepreneur Education:</u>		
Running own business during study	3.668***	4.499***
Running own business before study	2.351*	1.027
Family running own business	1.912*	2.258**
Friend running their own business	1.069	0.535
<u>Respondent's demographic:</u>		
Gender	2.633***	2.774
Age	3.069**	3.360
Marital status	-1.540	-0.012
Malay	2.144**	2.008*
CGPA	-2.670***	-1.847*
Malaysian University English Test (MUET)	-0.222	-0.047
Working's Status	1.950**	0.624
Father active economically	0.755	0.792
Mother active economically	0.346	0.630
Pseudo R ²	0.094	0.090
p-value	0.000	0.000

Results from the estimated linear regression model (see Table 6) reveal that friend running their own business, marital status, MUET, father and mother active in economically do not have significant influence on the intention to be an entrepreneur before and after graduates enter the labour market.

However, consistent with the literature, the education factor (formal and informal) is found to have a positive and significant effect on entrepreneurship career option. The probability of respondents with entrepreneurship degree to choose entrepreneur as their career is higher than those with non-entrepreneur degree after they enter the labor market.

In addition to that, running own business during and before study is also an important factor. Respondents who have more experience with family entrepreneurship activities have higher probabilities to choose entrepreneurship as their career choice. Other significant factor are gender (male), age, *Malay*, and employment status; they have positive and significant effects on the probability of choosing to be an entrepreneur after they enter the labour market.

The results pertaining to academic achievement is an interesting finding, which appears to be negatively related to the intention to be an entrepreneur. Lower CGPA scores are found to be related to having the highest intention to be an entrepreneur before and after they enter the labour market. According to the result, entrepreneurship career is not a preferred choice (relatively) for high-achieving graduates. In terms of goodness of fit, the R^2 is 0.090 (before) and 0.094 (after), while the overall fit tests are significant with a p-value of almost zero.

Table 7
Estimated linear regression results between intention to be entrepreneur in innovator domain,
before and after entering labour market

Variable	Innovator	
	After	Before
<u>Formal entrepreneur Education:</u>		
Entrepreneur degree holder	2.615**	1.517
Involving entrepreneurship program or entrepreneurial activities during study	1.186**	1.825***
<u>Informal entrepreneur Education:</u>		
Running own business during study	1.963***	2.128***
Running own business before study	0.982	0.444
Family running own business	1.260**	1.344**
Friend running their own business	0.582	0.216
<u>Respondent's demographics:</u>		
Gender	1.340***	1.224**
Age	2.591***	2.697***
Marital status	-0.441	0.200
Malay	1.479***	-1.073*
CGPA	-1.205***	-1.146**
Malaysian University English Test (MUET)	0.088	0.186
Working Status	1.213***	0.246
Father active economically	0.686	0.199
Mother active economically	0.170	0.390
Pseudo R ²	0.104	0.102
p-value	0.000	0.000

Generally, the results of Table 6 (talent domain) have a high similarity with the results of Table 7 (innovator domain) in terms of formal entrepreneurship education (entrepreneur's degree holder and involvement in entrepreneurship program or entrepreneurial activities during study), informal entrepreneurship education (running own business during and before study and family running own business) and respondent's demographics (male, age, *Malay*, CGPA and working status). In terms of the goodness of fit, the R² is found to be 0.102 (before) and 0.104 (after) and the overall fit tests are significant with a p-value of almost zero.

5. Discussion and conclusion

From the findings, it is clearly that graduates who are exposed to entrepreneurship education (formal and informal) have huge potentials to become entrepreneurs. This result is consistent with previous studies (Eraut, 2004; Norfadhilah and Norasmah, 2004; Heinonen and Poikkijoki, 2006; Shelly and Seung, 2008; Lautenschlager and Haase, 2011; Shariff *et al.*, 2011; Amran *et al.* (2013); and Zuhairah *et al.*, 2014). Its implication is indeed that entrepreneurship can be cultivated through education, whether through formal and informal entrepreneurship education.

This paper supports government policies in terms of cultivating educated entrepreneur such as promoting the entrepreneurship education among higher institutions of education (MoE, 2007). Matlay (2008) agrees that entrepreneurship education gives a significant effect towards producing actual graduate entrepreneur. However, there are negative relationships among higher academic achievement of graduates towards their intention to be entrepreneurs. It is indicated that high academic achievements are negatively related to becoming entrepreneurs. Thus, it is suggested that entrepreneurship education in terms of both formal and informal education be implemented into the curriculum in order to cultivate entrepreneurial intentions.

There is still much more to be learned to fully understand the processes that lead to the decision to become an entrepreneur. Nevertheless, the results presented in this paper provide some understanding of the factors influencing the decision to become an entrepreneur among university students and graduates, using a convenience sample. Thus, the results are exploratory and subject to validation by future studies using more representative samples. Nonetheless, our study has made a modest contribution in the effort to develop entrepreneurs in the country.

References

- Abdul Halim, A., Yahya, D., Mohd Fo'ad, S., Mohamed Suker, K. and Yaakob, D. (2010), "Kajian impak program pembangunan keusahawanan kolej komuniti", Unpublished Manuscript, Research for Centre and Innovation, Universiti Utara Malaysia, Malaysia.
- Ajzen, I. (1991), "Theory of Planned Behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50, No. 2, pp. 179-211.
- Amran, M. R., Saif, U., Shaghyeh, R., K. and Samrena, M. J. (2013), "Factors affecting entrepreneurial intention among graduate students of Universiti Teknologi Malaysia", *International Journal of Business and Social Science*, Vol. 4, No. 2, pp. 182- 188.
- Armanurah, M., Abdul Razak, A., and Syahrina, A. (2005), "Kepentingan pendidikan keusahawanan kepada organisasi dan Negara" in *National Conference on skills and Competencies in Education, 2005*, pp. 101-106.
- Berma, M., Shamshubaridah, R., Faridah, S. and Shazlinda, M. Y. (2012), "Developing an entrepreneurship education eco-system at University Kebangsaan Malaysia (UKM): A critical analysis on teaching, learning and knowledge development" in *Teaching and Learning Convention in Bangi, 2012*, Universiti Kebangsaan Malaysia, Bangi, Malaysia, pp.1-36.
- Bird, B. (1992), "The operation of intentions in time: The emergence of the new venture", *Entrepreneurship Theory and Practice*, Vol. 17, No. 1, pp. 11- 20.
- Collins, L., Hannon, P., D. and Smith, A. (2004), "Enacting entrepreneurial intent: The gap between students' needs and higher education capabilities", *Education Training*, Vol. 48, No 8/9, pp. 454-463.
- Cooney, T. and Murray, T. (2008), "Entrepreneurship education in the third- level sector in Ireland", available at: <http://arrow.dit.ie/cgi/viewcontent.cgi?article=1001&context=imerep> (accessed 8 July 2013).
- Davey, T., Plewa, C. and Struwig, M. (2011), "Entrepreneurship perceptions and career intentions of international students", *Education + Training*, Vol. 53 No. 5, pp. 335-352.
- Eraut, M. (2004), "Informal learning in the workplace", *Studies in Continuing Education*, Vol 26, No. 2, pp. 35-57.
- European Centre for the Development of Vocational Training (CEDEFOD). (2008), "Assuring the quality of VET systems by defining expected outcomes: A cross- country analysis in seven members", available at: <http://aei.pitt.edu/42120/> (accessed 2 July 2013).
- European Commission. (2012), "Entrepreneurship education: A guide for educators", available

- at:
http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/entred-manual-fv_en.pdf (accessed 15 May 2013).
- Fatoki, O. O. (2010), "Graduate entrepreneurial intention in South Africa: Motivations and Obstacles", *International Journal of Business and Management*, Vol. 5, No. 9, pp. 87-98.
- Hattab, W. H. (2014), "Impact of entrepreneurship education on entrepreneurial intentions of university students in Egypt", *The Journal of Entrepreneurship*, Vol. 23, No. 1, pp. 1-18.
- Heinonen, J. and Poikkijoki, A. A. (2006), "An entrepreneurial-directed approach to entrepreneurship education: mission impossible?" *Journal of Management Development*, Vol. 25, No. 1, pp. 80-94.
- Henderson, R. and Robertson, M. (2000), "Who wants to be an entrepreneur? Young adult attitudes to entrepreneurship as a career", *Career Development International*, Vol. 5, No. 6, pp. 279- 287.
- Klyver, K. (2007), "Shifting family involvement during the entrepreneurial process", *International of Entrepreneurial Behavior & Research*, Vol. 13, No. 5, pp. 258- 277.
- Krejcie, V. R. and Morgan, W. D. (1970), "Determining sample size for research activities", *Educational and Psychological Measurement*, No. 30, pp. 607- 610.
- Lautenschlager, A. and Haase, H. (2011), "The myth of entrepreneurship education: Seven Arguments against teaching business creation at universities", *Journal of Entrepreneurship Education*, Vol. 14, pp. 147-161.
- Lim, H. E. and Hussin, A. (2004), "Gelagat pembelian barang cetak rompak: Kesan faktor harga dan pendidikan", *Jurnal Ekonomi Malaysia*, Vol. 38, pp. 81-98.
- Mahmoud, M., A., Kastner, A. and Yeboah, J. (2010), "Antecedents, environmental moderators and consequences of market orientation: A study of pharmaceutical firms in Ghana", *Journal of Medical Marketing*, Vol. 10, No. 3, pp. 231-241.
- Malaysia Department of Statistics. (2009), "Special broadcast of the labor force survey of entrepreneurs in Malaysia", available at:
http://www.statistics.gov.my/portal/download_labour/files/BPTMS/SIARAN_KHAS_USAHAWAN_DI_MALAYSIA.pdf (accessed 12 November 2012).
- Malaysia Qualification Register (MQR). (2009), "Search for qualifications public government institutions", available at: <http://www.mqa.gov.my/mqr/english/earkrbyipta.cfm> (accessed 12 November 2012).
- Matlay, H. (2008), "The impact of entrepreneurship education on entrepreneurial outcomes", *Journal of Small Business and Enterprise Development*, Vol. 15, No. 2, pp. 382- 396.

- Ming Yu., C., Wai Sei, C. and Amir, M. (2009), "The effectiveness of entrepreneurship education in Malaysia", *Education and Training*, Vol. 51, No. 7, pp. 555- 556.
- Ministry of Education (MoE). (2007), "National Higher Education Plan 2007- 2010", available at: <http://www.mohe.gov.my/psptn> (accessed 10 December 2012).
- Mohammad Ismail, Shaiful, A.K., Mahmud, O., Kamaruzaman, J., H., Norshimah, A. R., Kamsol, M., K. and Rozihana., S., Z. (2009), "Entrepreneurial Intention among Malaysian Undergraduates", *International Journal of Business and Management*, Vol. 4, No. 10, pp. 54- 60.
- Mohd Khairuddin, H. and Syed Azizi, W. (2002), *Small and medium-sized enterprises in Malaysia: Development issues*, Kuala Lumpur, Prentice Hall Pearson, Malaysia.
- Mohd Rosli, M. (2013), *Entrepreneurial education and entrepreneurship in Malaysia, entrepreneurial network organisation in theory and practice*, Universiti Malaysia Kelantan, Malaysia.
- Muhammad, A., Akbar, S. and Dalziel, M. (2011), "The journey to develop educated entrepreneurs: Prospects and problems of Afghan businessmen", *Education + Training*, Vol. 53, No. 5, pp. 433-447.
- Muhammad Mu'az, M., Zainal Abidin, M., Rezai, G. and Mad Nasir, S. (2011), "Agri-entrepreneurship development: A study of young graduates in Malaysia", in the *1st international Conference on Rural Development and Entrepreneurship in Kuching, Sarawak, 2011*, Universiti Utara Malaysia, Malaysia, pp. 537- 546.
- National Higher Education Action (PSPTN). (2007), "National Higher Education Action Plan 2007-2010", available at: <http://planipolis.iiep.unesco.org/upload/Malaysia/Malaysia%20Higher%20education%20action%20plan%202007-2010.pdf> (accessed 9 March 2012).
- Nor Aishah, B. (2013), "Kajian keperluan pendidikan keusahawanan secara formal dalam kalangan pelajar Fakulti Kejuruteraan dan Alam Bina dan Fakulti Pendidikan, Universiti Kebangsaan Malaysia, available at: <http://www.ukm.my/p3k/images/sppb08/d/7.pdf> (accessed 9 July 2013).
- Nor Aishah, B., Ismail, R. and Husin, M. (2010), "*Kajian impak program pembudayaan keusahawanan INSKEN (2006-2009)*", Unpublished Manuscript, Research Project, Universiti Kebangsaan Malaysia, Malaysia.
- Norfadhilah, N. and Norasmah, O. (2012), "Evaluation of Polytechnic entrepreneurship programs in Malaysia", *International Journal of Trade, Economics and Finance*, Vol. 3, No. 5, pp: 356- 362.
- Othman, N. H. and Ishak, S. B. (2009), "Attitude toward choosing a career in entrepreneurship amongst graduates", *European Journal of Social Sciences*, Vol. 10, No. 3, pp. 419- 434.

- Othman, M. N., Ghazali, E. and Cheng, O. C. (2005), "Demographics and personal characteristics of urban Malaysian entrepreneurs: An ethnic comparison", *International Journal of Entrepreneurship and Innovation Management*, Vol. 5, No. 5/6, pp. 421-440.
- Pittaway, L. and Edwards, C. (2012), "Assessment: Examining practice in entrepreneurship education", *Education + Training*, Vol. 58, No. 8/9, pp. 778-800.
- Planning, Research and Corporate Division, MoE. (2013), "*Sistem kajian pengesanan graduan, unit pengurusan data*", Unpublished Manuscript, Ministry of Education, Malaysia.
- Politis, D. (2008), "Does prior start-up experience matter for entrepreneurs' learning? A comparison between novice and habitual entrepreneurs", *Journal of Small Business and Enterprise Development*, Vol. 15, No. 3, pp. 472- 489.
- Romero, M. (2013), "Game based learning MOOC. Promoting entrepreneurship education. Elearning Papers", *Special Edition MOOCs and Beyond*, Vol. 33, pp. 1-5.
- Rwigema, H. and Venter, R. (2004), *Advanced entrepreneurship*, (3rd ed.), Cape Town, Oxford University Press.
- Sandhu, S., M., Sidique, F., S., and Riaz, S. (2010), "Entrepreneurial barriers and entrepreneurial inclination among Malaysia postgraduate students", *International Journal of Entrepreneurial Behavior & Research*, Vol. 17, No. 4, pp. 428-229.
- Sario. (2011), "Why Slovakia? Key facts why to choose Slovakia as your next investment destination", available at:
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CCgQFjAA&url=http%3A%2F%2Fwww.sario.sk%2Fuserfiles%2Ffile%2Fsario%2Fagenturasario%2Fmarketing%2Fpublikacie%2FWhySlovakia.pdf&ei=ICSEUv_WPOaiigfqlGACA&usg=AFQjCNGV0iwxYhg5Z0V_P-1fJVAeXI2Gg&bvm=bv.56343320,d.aGc (accessed 17 January, 2012).
- Shariff, A. F. and Norenzayan, A. (2011), "Mean gods make good people: Different views of God predict cheating behaviour", *International Journal for the Psychology of Religion*, Vol. 21, pp. 85-96.
- Shelly, A. B. and Seung, Y. C. (2008), "Factors that influence informal learning in the workplace", *Journal of Workplace Learning*, Vol. 20, No. 4, pp. 229-244.
- Solomon, M., Bamossy, G. and Asegaard, S. (2002), *Consumer behaviour*, A European perspective, Prentice Hall.
- Souritaris, V., Zerbinati, S. and Al-Laham, A. (2007), "Do entrepreneurship program raise entrepreneurial intention of science and engineering student? The effect of learning, inspiration and resource", *Journal of business Venture*, Vol. 22, No. 4, pp. 566- 591.

Syahrina, A., Armanurah, M., Habshah, B., Norashidah, H. and Yeng Kiat, O. (2012), "Tracer study of Bachelor in Entrepreneurship program: The case of Universiti Utara Malaysia", *International Journal of Education and Research*, Vol. 1, No. 9, pp. 1-10.

Van der Sluijs, J., P., Jansen, P., H., M., Peterson, A., C., Klopogge, P., Risbey, J., S., Tuinstra,

W. and Ravetz, J., R. (2005), "Combining quantitative and qualitative measures of uncertainty in model based environmental assessment", *The NUSAP System, Risk Analysis*, Vol. 25, No. 2, pp. 481- 492.

Wang, Y. and Verzat, C. (2011), "Generalist or specific studies for engineering entrepreneurs?

Comparison of French engineering students trajectories in two different curricula", *Journal of Small Business and Enterprise Development*, Vol. 18, No. 2. Pp. 7-12.

Yeng Kiat, O. and Shuhymee, A. (2012), "A study among university students in business start-

ups in Malaysia: Motivations and obstacles to become entrepreneurs", *International Journal of Business and Social Science*, Vol. 3, No. 19, pp: 181- 192.

Zaidatol, A. L. P., Abd Rahim, B. and Mohd Majid K. (2002), "Pelaksanaan pendidikan keusahawanan di Malaysia: Kesan terhadap aspirasi keusahawanan pelajar", *Petanika J. Soc. Sci. & Hum.* Vol. 10, No. 1, pp. 53-61.

Zainal Abidin, M., Golnaz, R., I., Amin, M., A. and Ezhar, T. (2011), "Work culture and developing agri-entrepreneurial skills among farmers", *American Journal of Economics and Business Administration*, Vol. 3, No. 3, pp. 490-497.

Zuhairah, A. A. G., Herna, M. and Zarinah, H. (2014), "Legal Eagle entrepreneurship education

for law students: Special reference to International Islamic University Malaysia", *Pertanika J. Soc. & Hum.* Vol. 22 No. (S), pp. 83-98.

APPENDIX I
Entrepreneurship programs in Higher Education Institutions in Malaysia

Institutions	Types of course or program
Universiti Utara Malaysia (UUM)	Compulsory university course: Fundamental Entrepreneurship (undergraduate), Core course in Bachelor of Business Management with Honours program, Bachelor in Entrepreneurship with Honours, Elective course (post-graduate)
University Teknologi Mara (UiTM)	Compulsory university course (Diploma)
Universiti Teknologi Malaysia (UTM)	Elective course: Entrepreneur and Marketing (undergraduate) Master of Technopreneur, Research field (post- graduate)
Univeristi Putra Malaysia (UPM)	Specialization in Bachelor of Business Administration with Honours Research field (post- graduate)
Universiti Malaysia Sabah (UMS)	Compulsory course in Bachelor of Business with Honours and Bachelor of Economics and minor program, Research field (post- graduate)
Universiti Malaya (UM)	Elective course in Bachelor of Business Administrative with Honours Elective course in Master of Management, Research field (post- graduate)
Universiti Islam Antarabangsa (UIAM)	Elective course in Bachelor of Management Administrative with Honours
Universiti Pendidikan Sultan Idris (UPSI)	Elective course in Bachelor of Education (Entrepreneur) with Honours
Univesiti Sains Islam Malaysia (USIM)	Research field (post- graduate)
Universiti Malaysia Terengganu (UDM)	Entrepreneurship and Business course: The core of Bachelor of Chemical Engineering (Biotechnology), Entrepreneurship and Engineering course: The core of Bachelor of Mechanical Engineering, Cyber Entrepreneurship course: The core of Diploma of Computer Technology (Software Engineering), Entrepreneurship course: Elective programme in Bachelor of Electrical Engineering (electronics).
Universiti Malaysia Perlis (UniMAP)	Compulsory university course: Bachelor of Engineering Entrepreneurship
Universiti Teknikal Malaysia Melaka (UteM)	Entrepreneurial skills course, program core courses in Bachelor of Software Development, Bachelor of Computer Network, Bachelor of Database and Bachelor of Interactive Media, Master of Science in Entrepreneurship, Research field (post-graduate)
Universiti Tun Hussein Onn Malaysia (UTHM)	Entrepreneurship and Business course: Core course in Diploma program Fundamental course in business and entrepreneurship in Diploma course
Universiti Malaysia Kelantan (UMK)	Fundamental course and core course in Bachelor of Entrepreneurship (Hospitality) with Honours, Bachelor of Entrepreneurship (Tourism) with Honours and Bachelor of Entrepreneurship (Business) with Honours
Sources: adaptation from Armanurah, Abdul Razak and Syahrina (2005) in Nor Aishah, Ismail and Husin (2010)	

APPENDIX II
Definition and measurement of variables

Code of variable	Definition	Measurement
Gender	Gender by birth	Male Female
Age	Respondents' age	20- 25 years old 26- 30 years old
Marital Status	Respondents' gender	Single Married
CGPA	Cumulative Grade Point Average of respondents	2.00- 2.99 3.00- 3.66 3.67- 4.00
MUET	Malaysian University English Test	Band 6 (very good user) Band 5 (good user) Band 4 (competent user) Band 3 (modest) Band 2 (limited user) Band 1 (extremely limited user)
Employment Status	Respondents' employment status	Unemployed Employed
Father's Occupation	Respondent's father's employment status	Unemployed Employed
Mother's Occupation	Respondent's mother's employment status	Unemployed Employed
Entrepreneurs Degree Holder	Course/Program that respondent has taken	Yes No
Involvement in entrepreneurship program or entrepreneurial activities during study	Respondents gain business experience by involving in entrepreneurial activities during their study	Yes No
Running own business during study	Respondents gain business experience by involving themselves in entrepreneurial activities	Yes No
Running own business before study	Respondents gain business experience by involving themselves in entrepreneurial activities	Yes No
Family running own business	Respondents gain business experience by involving in family business	Yes No
Best Friend running own business	Respondents gain business experience by involving in best friend's business	Yes No